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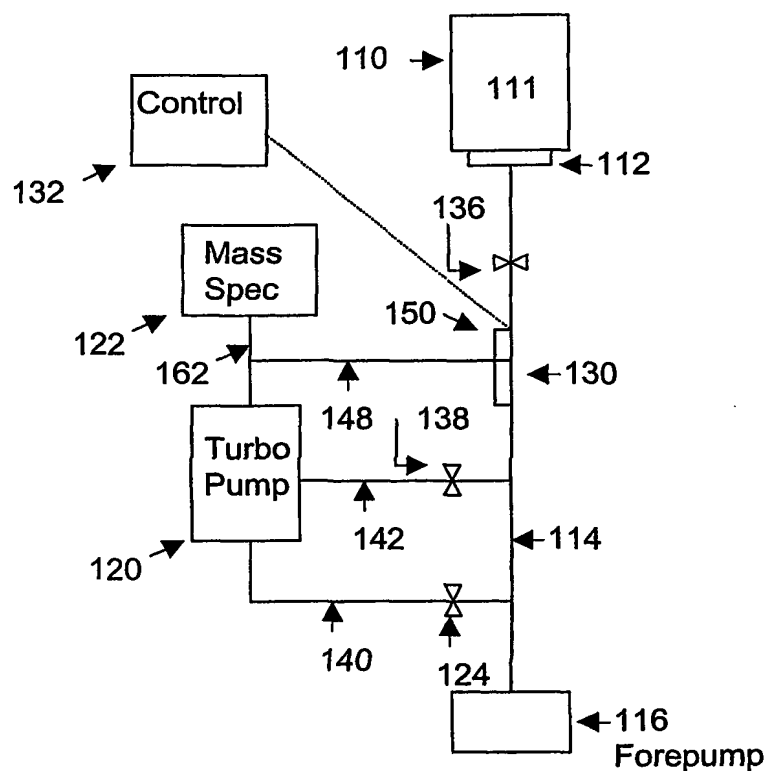
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(54) Title: METHOD AND APPARATUS FOR LARGE LEAK TESTING



(57) **Abstract:** Methods and apparatus for large leak testing are provided. The apparatus includes a test line to receive a sample containing a trace gas, a mass spectrometer to detect the trace gas and having an inlet for receiving the trace gas, a first vacuum pump characterized by a relatively high reverse flow rate for light gases and a relatively low reverse flow rate for heavy gases, the first vacuum pump having a pump inlet and a foreline, the pump inlet being coupled to the inlet of the mass spectrometer, and a second vacuum pump configured to back the first vacuum pump. The apparatus further includes a trace gas permeable member coupled between the test line and the pump inlet, the foreline, or, in the case where the first vacuum pump is a turbomolecular pump, a midstage line.